

8.50 Pre-operational Testing Requirements for Tower Cranes

Date: November 5, 2008

I. Purpose

This directive establishes inspection procedures and enforcement policies related to testing of tower cranes required under WAC 296-155-525(5)(f).

II. Scope and Application

This directive applies to all DOSH operations statewide. It replaces all previous instructions on this issue, whether formal or informal.

III. References

- Chapter 296-155 WAC, Part L
- American Society of Mechanical Engineers, B30.3

IV. Background

Chapter 296-155 WAC, Part L establishes requirements for cranes used in the construction industry. WAC 296-155-525(5)(f) sets forth requirements for tower cranes, which are intended to be consistent with ASME standards. In 1996, ASME updated the tower crane standards, including requirements for tower crane load testing. Existing WISHA rules were not updated to reflect these changes, although rule making is in progress to address these changes.

V. Enforcement Policies:

WAC 296-155-525(5)(f) states that:

“Tower cranes erected on a new foundation shall be tested in accordance with ANSI B30.3 – 1990 Chapter 3-1:

- (i) The test shall consist of suspending a load of not less than 110% of the rated capacity for 15 minutes. The load shall be suspended from the furthest point of the

length of boom (jib) to be used. The results of this test shall be within the manufacturer's recommendations and/or specifications.

(ii) A record of each test shall be made and signed by the person responsible for conducting the test. Such records shall be maintained on the construction site for the duration of the construction work for which it was erected and subsequently made a part of the firm's permanent equipment records. Records shall be made available to authorized representatives of the department, upon request."

The 2004 ASME B30.3, paragraph 3-1.1.6 **Pre-operational Test** provides that tower crane pre-operational testing shall be performed as follows:

"(c) After erection, supports or foundation to which the crane base is attached shall be tested before placing the crane in service. The test shall be conducted with the rated load placed at maximum radius permitted by the site conditions. For free standing cranes, when the crane support (base) is symmetrical, the superstructure shall be rotated through 90 degrees with 10 minute stops at the starting position and at each 45 degree position. When the support is asymmetrical, the superstructure shall be rotated through 360 degrees with 10 minute stops at the starting position and at each 45 degree position. If any part of the support structure becomes displaced or distressed, all crane operations shall stop until an evaluation is made by a qualified person."


VI. Citation Policy

Tower cranes that are tested in conformance with the 2004 ASME testing requirements described above will be considered to be in compliance with WAC 296-155-525(5)(f).

Rated load (load rating) is defined in the ASME as the maximum allowable working load designated by the manufacturer; rated loads are expressed in pounds, kilograms, short tons, kips, or metric tons.

Working load is defined as the external load applied to the crane, including the weight of load attaching equipment such as ropes, shackles, hooks, slings and load blocks (unless the load block is considered a part of the rating by the manufacturer).

The maximum allowable is dictated by the crane manufacturer, or in the absence of a manufacturer, a registered professional structural engineer (RPSE).

Approved: 
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For further information about this or other DOSH Directives, you may contact the Division of Occupational Safety & Health at P.O. Box 44650, Olympia, WA 98504-4650 – or by telephone at (360) 902-5530. You may also review policy information on the DOSH website (<http://www.lni.wa.gov/Safety>).